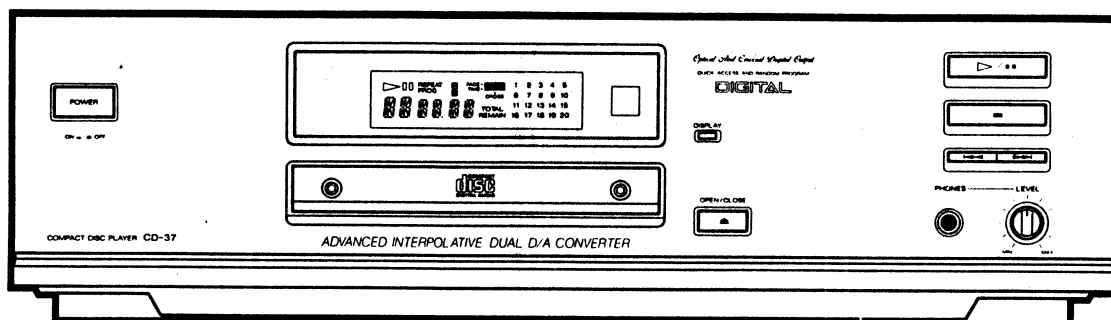


AKAI SERVICE MANUAL



MODEL CD-37

COMPACT DISC PLAYER

MODEL CD-27, 37

SPECIFICATIONS

Pick-up system	3 beam laser pick-up
Sampling frequency	44.1 kHz
Digital filter	18 bit, 8 times over sampling
D/A converter	Interpolative one bit dual
Error correction system	Cross interleave reed solomon
Number of channels	2 channel stereo
Frequency response	2 Hz to 20 kHz $\pm$ 0.5 dB
Dynamic range	97 dB (1 kHz)
S/N ratio	108 dB
Total harmonic distortion	0.0035 % (1 kHz)
Wow & flutter	Less than measurable limits
Output level / Impedance	
Analog output (Line)	2 V / 330 ohms
Digital output (Coaxial)	0.5 Vp-p / 75 ohms
(Optical)	- 22 dBs
Headphone output	32 mW / 32 ohms
Power requirements	220 V-230 V, 50 Hz for Europe except UK
	240 V, 50 Hz for UK and Australia
Dimensions	
CD-27	425 (W) X 120 (H) X 351 (D)mm
CD-37	425 (W) X 120 (H) X 349 (D)mm
Weight	
CD-27	4.4 kg
CD-37	4.6 kg

Standard accessories

Connection cord	X1
Remote control unit (RC-C37)	X1
Batteries for the remote control unit	X2
Operator's manual	X1

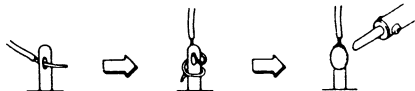
*For improvement purposes, specifications and design are subject to change without notice.

0 dBs = 0.775 V

★ SAFETY INSTRUCTIONS

PRECAUTIONS DURING SERVICING

- Parts identified by the * (*) symbol are critical for safety. Replace only with parts number specified.
- In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation. These must also be replaced only with specified replacements.
Examples: RF converters, tuner units, antenna selector switches, RF cables, noise blocking capacitors, noise blocking filters, etc.
- Use specified internal wiring. Note especially:
 - Wires covered with PVC tubing
 - Double insulated wires
 - High voltage leads
- Use specified insulating materials for hazardous live parts. Note especially:
 - Insulation Tape
 - PVC tubing
 - Spacers (Insulating barriers)
 - Insulation sheets for transistors
 - Plastic screws for fixing microswitch (especially in turntable)
- When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap ends of wires securely about the terminals before soldering.



- Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).
- Check that replaced wires do not contact sharp edged or pointed parts.
- Also check areas surrounding repaired locations.
- Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

SAFETY CHECK AFTER SERVICING

After servicing, make measurements of leakage-current or resistance in order to determine that exposed parts are acceptably insulated from the supply circuit. The leakage-current measurement should be done between accessible metal parts (such as chassis, ground terminal, microphone jacks, signal input / output connectors, etc.) and the earth ground through a resistor of 1500 ohms paralleled with a 0.15 μ F capacitor, under the unit's normal working conditions. The leakage-current should be less than 0.5 mA rms AC. The resistance measurement should be done between accessible exposed metalparts and power cord plug prongs with the power switch (if included) "ON". The resistance should be more than 2.2 Mohms.

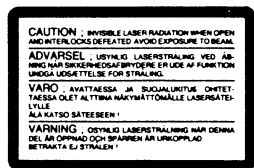
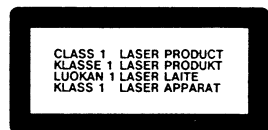
MAKE YOUR CONTRIBUTION TO PROTECT THE ENVIRONMENT

Used batteries with the ISO symbol for recycling as well as small accumulators (rechargeable batteries), mini-batteries (cells) and starter batteries should not be thrown into the garbage can. Please leave them at an appropriate depot. All other household batteries can be thrown out with the household waste.



CLASS 1 LASER PRODUCT

This product contains a low power laser device. To ensure continued safety, do not remove any covers or attempt to gain access to the inside of the product. Refer any servicing to qualified personnel. Use actual size stickers



★ INFORMATION

SYMBOLS FOR PRIMARY DESTINATION

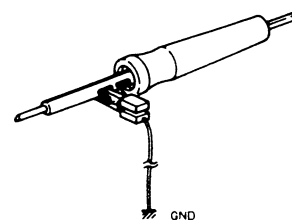
Primary destination of units are indicated with the following alphabet.

Symbols	Principal Destinations
[B]	UK
[E]	Europe (except UK)
[S]	Australia
[V]	Germany
[U]	Universal Area
[Y*]	Custom version

PRECAUTIONS IN REPAIRING

When repairing or adjusting the unit, please note the following points.

- Do not put excessiv pressure on the mechanical part (operation part), including the pick-up block, as extremely high mechanical precision is required in these parts.
- When the base is removed for repair or adjustment, make sure that there are no metal objects in the narrow gap between the P.C.board or the mecha parts and the base.
- The Micro-Computer and the CD signal processing ICs can be damaged by static electricity or leakage from a soldering iron during repairing. While soldering, please take the precautions against leakage as in the illustration.

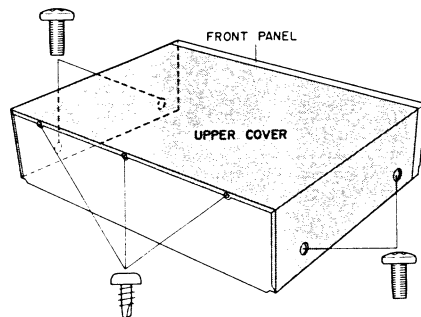


- Do not loosen any screws in the pick-up block. When handing the pick-up block, please refer to the points to NOTE when replacing the pick-up block.
- Keep safety for hazardous invisible Laser Radiation, DO NOT watch the Laser Beam (Objective lens) directly.
- Models for the some countries, laser warning labels are affixed on the unit and inside of the unit, as shown below. Read it carefully for your safety, when repairing or adjusting the unit.

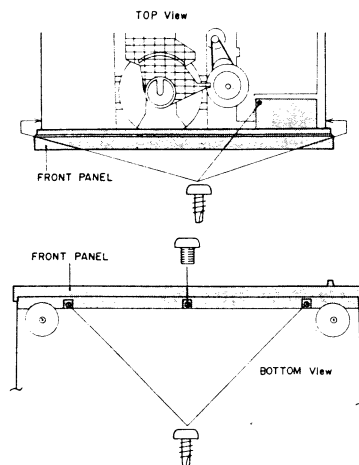
I. DISASSEMBLY

In case of trouble, etc., necessitating dismantling, please dismantle in the order shown in the illustrations. Reassemble in reverse order.

1. Removal of UPPER COVER



2. Removal of FRONT PANEL



II. PRINCIPAL PARTS LOCATION

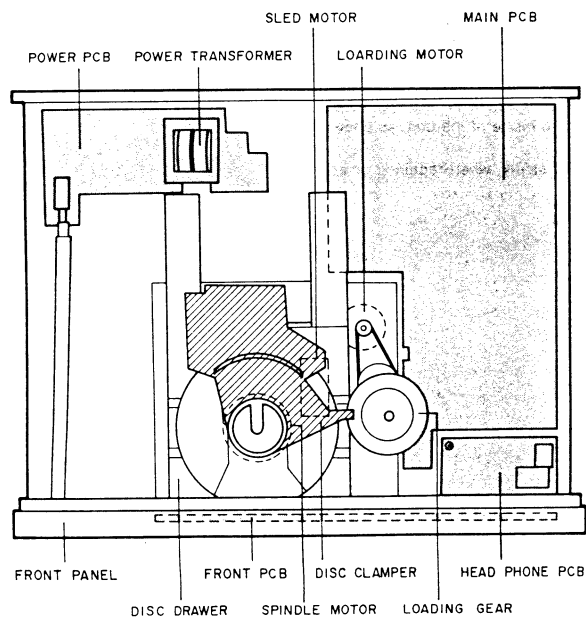


Fig.2-1

III. REPLACEMENT OF PRINCIPAL COMPONENT

When removing the motors (spindle motor, loading motor, sled motor) or pick up block for replacement, be sure to remove the mecha block and disc clasper first.

PRECAUTIONS:

To prevent damage to the LD (laser diode) during removal of the mecha block, please follow the following precautions:

- When removing the MAIN PCB's P2 or P3 connectors, first short the short points on the pick up block's PCB with solder as shown Fig. 3-1.
- When replacing the pick up block with a new one, or when installing the mecha block, first install the P2 and P3 connectors and then remove the solder from the short points to open them.

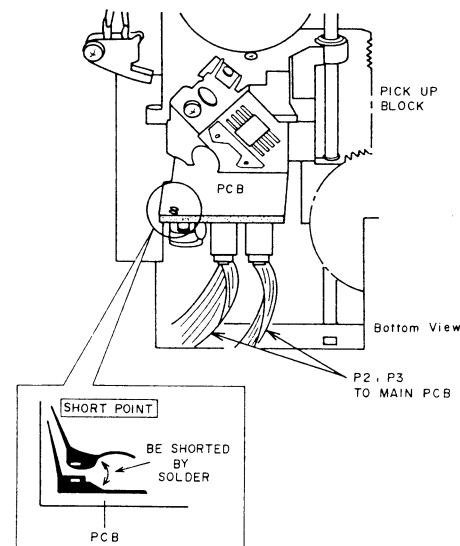


Fig 3-1

3-1. HOW TO REMOVE THE MECHA BLOCK

- 1) Remove the mecha block's retaining screws (A).
- 2) Turn the mecha block over and short the pick up block's short points with solder. (Refer to the precautions.)
- 3) Remove the P2, P3, P5 and P6 connectors on the MAIN PCB.

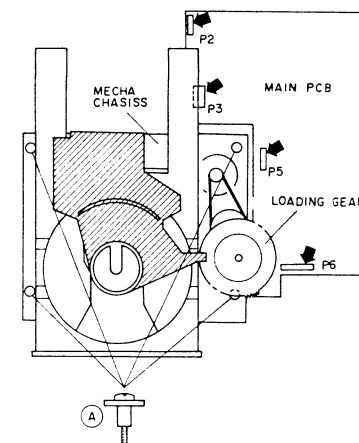


Fig 3-2

3-2. HOW TO REMOVE THE DISC CLAMPER

- 1) Move the disc drawer forward by turning the loading gear counterclockwise.
- 2) Remove the disc clasper spring (B).
- 3) Lift the disc clasper up slightly and move it to the left to remove it.

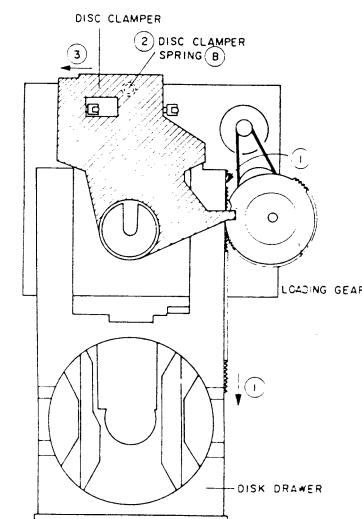


Fig 3-3

3-3.HOW TO REMOVE THE SPINDLE MOTOR

- 1) Move the pick up block in the direction of the arrow by turning the sled motor counterclockwise.
- 2) Remove the spindle motor retaining screws ③.
- 3) Move the spindle motor in the direction of the arrow and remove it.

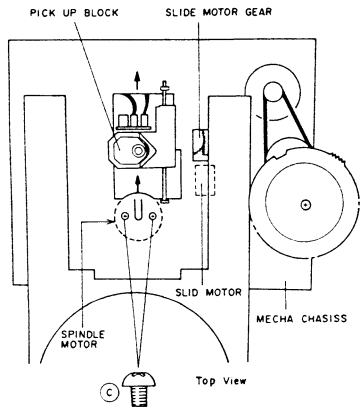


Fig 3-4

3-4.HOW TO REMOVE THE LOADING MOTOR

- 1) Remove the loading belt.
- 2) Turn the mecha block over.
- 3) Open the loading motor's 3 retaining hooks ④ and remove the motor.

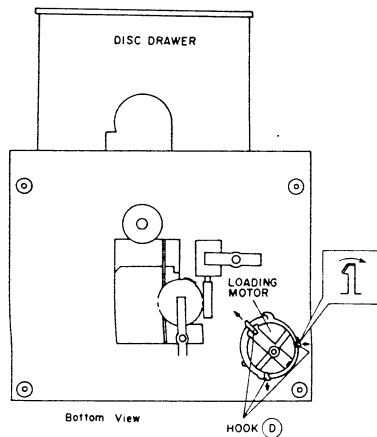


Fig 3-5

3-5.HOW TO REMOVE THE SLED MOTOR

- 1) Turn the mecha block over.
- 2) Lift up the left side of the sled motor's retaining hooks ⑤ and turn the sled motor counter clockwise.
- 3) Remove the sled motor.

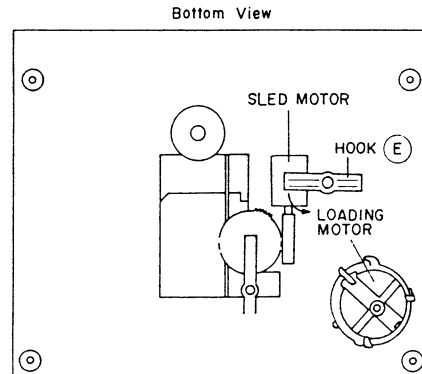


Fig 3-6

3-6.HOW TO REMOVE THE PICK UP BLOCK

- 1) While moving the stopper ⑥ to the right, press the top part of the pick up sled shaft to extract it.
- 2) Remove the pick up block.

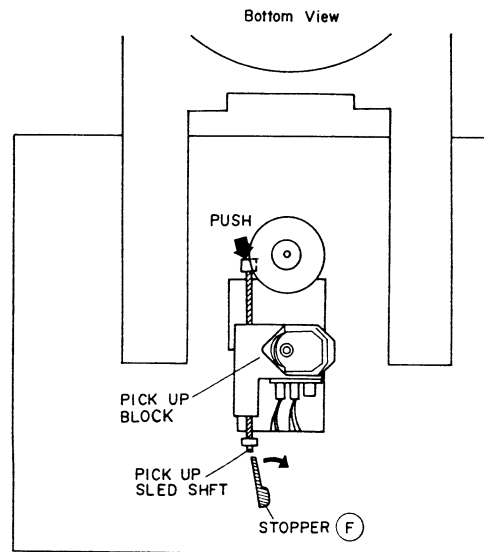


Fig 3-7

IV. ELECTRICAL ADJUSTMENT

[ABOUT THE TEST MODE]

*This TEST mode is used for the adjustment or check.

*How to set into the TEST mode.

Turn the power on, while pressing the $\blacktriangle$, $\blacksquare$ and $\blacktriangleright$ buttons on the front panel.

*How to change the TEST mode number.

Press the $\blacktriangle$ button, then advance a TEST mode number, when TEST mode number is return to initial TEST mode number, press $\blacksquare$ button.

STEP	ADJUSTMENT
1.	TEST DISC
2.	MODE or TEST mode
3.	TEST POINT and ADJUSTMENT parts.
4.	(+) REMARK, (+) RESULT

Test point ADJ.part

3 | TRACKING SERVO GAIN

1. Test disc 5A (AT-751330)
2. PLAY
3. Pin ⑥ (TRK) of connector P2 / VR 3
4. • Connect an oscilloscope to pin ⑥ (TRK) of connector P2.

* 0.8 to 1.2 Vp-p.



5 | FOCUS OFF-SET

1. Test disc 5A (AT-751330)
2. Test mode 2 and 1
3. TP 4 (FE) / VR 1
4. • Connect a digital DC voltmeter to TP 4 (FE) and check voltage A in the test mode 2, then press STOP button and adjust voltage B so that the reading on the digital DC voltmeter is same as voltage A.

* A=B

2 | E-F BALANCE

1. Test disc 5A (AT-751330)
2. Test mode 3
3. TP 3 (TE) / VR 2
4. • Connect an oscilloscope to TP 3 (TE)

* A=B



1 | VCO

1. —
2. 10 seconds after power is on.
3. TP 5 (WFCK) / VR 5
4. • Connect a frequency counter to TP5 (WFCK).

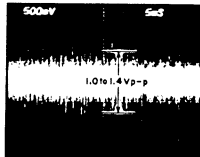
• Connect TP 1 (EFM) to TP 2 (GND) by jumper wire.

* 7,350 ± 50 Hz

4 | FOCUS SERVO GAIN

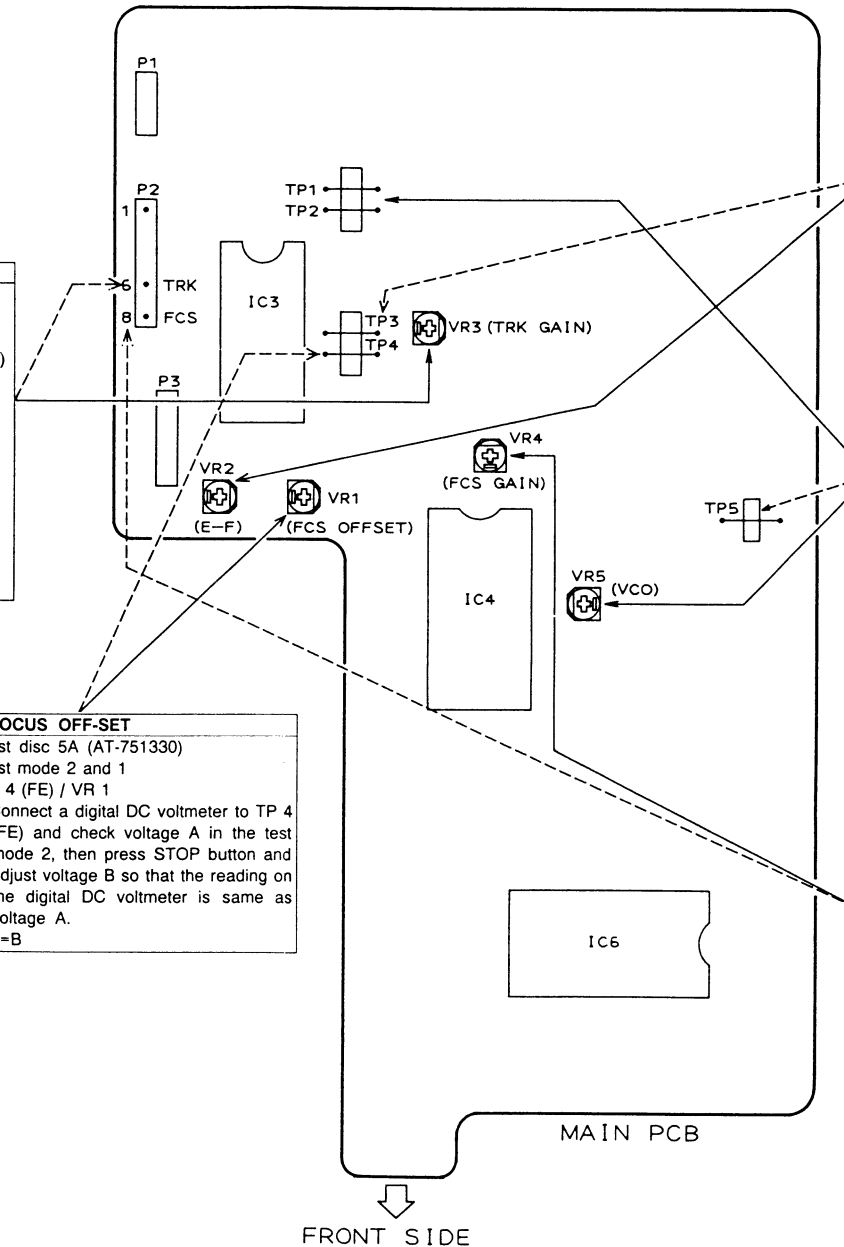
1. Test disc 5A (AT-751330)
2. PLAY
3. Pin ⑧ (FCS) of connector P2 / VR 4
4. • Connect an oscilloscope to pin ⑧ (FCS) of connector P2.

* 1.0 to 1.4 Vp-p



*TEST mode condition and DISPLAY

TEST MODE	DISPLAY	
1	TRACK MIN SEC 1 □ □ . □ □	• Indicated that unit is set into the TEST mode.
2	TRACK MIN SEC 12 □ □ . □ □	• Indicated that the end of FOCUS SEARCH.
3	TRACK MIN SEC 123 □ □ . □ □	• Set into the CLV-S mode. Tracking servo gain is set to same as "JUMP" mode.
4	TRACK MIN SEC 1234 □ □ . □ □	• Tracking servo is on.
5	TRACK MIN SEC 12345 1 □ . □ □	• Unit in to the normal play mode except anti shock is "OFF". • After this, track NO. and time counter become normal indication
6	TRACK MIN SEC 12345 1 □ . □ □	• Anti shock is "ON" and unit into normal condition. • If press the $\blacksquare$ button again, unit will enter the normal "power ON" mode.



FRONT SIDE

V. PARTS LIST

ATTENTION

1. When placing an order for parts, be sure to list Part No., Model No. and the description of each part. Otherwise, the non-delivery of the part or the delivery of a wrong part may result.
2. Please make sure that Part No. is correct when ordering. If not, a part different from the one you ordered may be delivered.
3. Since the parts shown in Parts List of Preliminary Service Manual may have been the subject of changes, please use this Parts List for all future reference.

HOW TO USE THIS PARTS LIST

1. This Parts List lists those parts which are considered necessary for repairs. Other common parts, such as resistors and capacitors, are listed in the "Common List for Service Parts" from which these parts should be selected and stocked.
2. The Recommended Spare Parts List shows those parts in the Parts List which are considered particularly important for service.
3. Parts not shown in the Parts List and "Common List for Service Parts" will not in principle be supplied.
4. How to read the Parts List.

a) Mechanism Block

b) PC Board

2. HEAD BASE BLOCK

Ref. No.	Part No.	Description
1	BH-T2023A320A	HEAD BASE BLOCK
2	HP-H2206A010A	HEAD R/P PR4-8FU C
3	ZS-477876	PAN20X03STL CMT
4	ZS-536488	BID20X08STL CMT
5	ZG-402895	SP CS ANGLE ADJUST

SP (Service Parts) Classification

This number corresponds with the individual parts index number in that figure.

6. MAIN PC BOARD

Ref. No.	Part No.	Description
IC1	EI-324536	IC HD14049BP
IC2	EI-336801	IC MB8841-564M
C1A	EC-338399	C MMY V 223M 250AC [U,E,B,S]
C1B	EC-350949	C MMY V 223M 250DC [J]
C1C	EC-338397	C MMY V 223M 125AC [C,A]
X1	EI-318384	OSC X'TAL NC-18C

Symbols for primary destination

[A]: AAL (U.S.A) [S]: SAA (Australia)

[B]: BEAB (England) [U]: U/T (Universal Area)

[C]: CSA (Canada)

[E]: CEE (Europe) [V]: VDE (Germany)

[J]: JPN (Japan) [Y]: Custom Version

SP (Service Parts) Classification

These reference symbols correspond with component symbols in the Schematic Diagrams.

The available PC Board Blocks are listed separately.

5. When Part No. is known, Parts Index at end of Parts List can be used to locate where that part is shown in Parts List by its Reference No. listed at right of Part No.

WARNING

⚠ (*) INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURE'S RECOMMENDED PARTS.

AVERTISSEMENT

⚠ (*) IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

1. RECOMMENDED SPARE PARTS

We suggest you to stock the following Recommended Spare Part items listed below since they can cover most of the routine service.

Ref. No.	Part No.	Description
1	AX-405220M	REMOCON RC-C37
2	BM-392868M	SG MOTOR LOADING PART (2)
3	BM-392869M	SG MOTOR SLIDE PART
4	BM-392867M	SG MOTOR SPINDLE PART
5	*BO-394728J	PICK UP KSS-210A
6	*BT-403494M	TRANS POW P2062-BS [B]
7	*BT-403493M	TRANS POW P2062-EV [E,V]
8	ED-307572	D SILICON H 1SS131
9	*ED-511907	D SILICON 1N4002 100V/1.0A
10	ED-403605J	D ZENER H HZS33-2
11	ED-397233J	D ZENER H HZS5C3
12	ED-403743J	D ZENER H HZS6B3
13	ED-400171J	D ZENER H HZS6C2L F05
14	ED-396365J	D ZENER H HZS6C3
15	*ED-397400J	D ZENER H HZS7B2
16	*EF-344106	FUSE ICP-N10 50V 0.4A
17	EH-403602J	COMP R RGL4T 223J
18	EH-389329J	COMP R RGL9T 223J
19	EI-389264J	IC BA6209N
20	EI-403498J	IC CD001AD
21	EI-390112J	IC CXA1081S
22	EI-390126J	IC CXA1082BS
23	EI-403497J	IC CXD1167Q
24	*EI-377860	IC MSF7805L
25	EI-403603J	IC M50957-270SP CD57SY1
26	EI-393323J	IC MS218AL-771
27	EI-400756J	IC NJM4558L-B
28	*EI-400855J	IC NJM79M05FA
29	EI-403498J	IC PCM67P
30	EI-381138J	OSC X'TAL HC-49/U 16934.400KHZ
31	EJ-394490J	SOCKET OPTICAL GP1F32T [OPTICAL OUT]
32	*EM-389466J	IND FL FIP8CYM7 CHARACTER
33	*EO-338409	COIL LF FKOB160MH02 250UH
34	ES-368603	SW LEAF MSW-1585
35	ES-393376J	SW LEAF SPPB22 01-1
36	*ES-371104	SW PUSH SDDL1 01-1 [POWER SW]
37	ES-394818J	SW TACT SOR-123HS T05 [PLAY]
38	ET-403432J	DETECTOR SPS-420-1
39	ET-363953	TR DTA114TS
40	ET-375983	TR DTA124TS
41	ET-360399	TR DTC114TS
42	*ET-353899	TR 2SA1317 S.T.U
43	ET-352726	TR 2SA1392 T.U
44	ET-394495J	TR 2SA934 Q.R
45	ET-394919J	TR 2SB1329 Q.R T05
46	ET-394494J	TR 2SC2060 Q.R F05
47	*ET-397160J	TR 2SC3330 R.S.T.U,V
48	ET-378524J	TR 2SC3383 S.T.U
49	ET-394917J	TR 2SD2005 Q.R T05
50	ET-394916J	TR 2SD2037 E.F T05
51	EV-403491J	VR ROTARY RK16K12B A203X2 [CD-27]
52	EV-405497J	VR ROTARY RK16K12B METALA203X2 [CD-37]
53	MB-368590J1	BELT LOADING

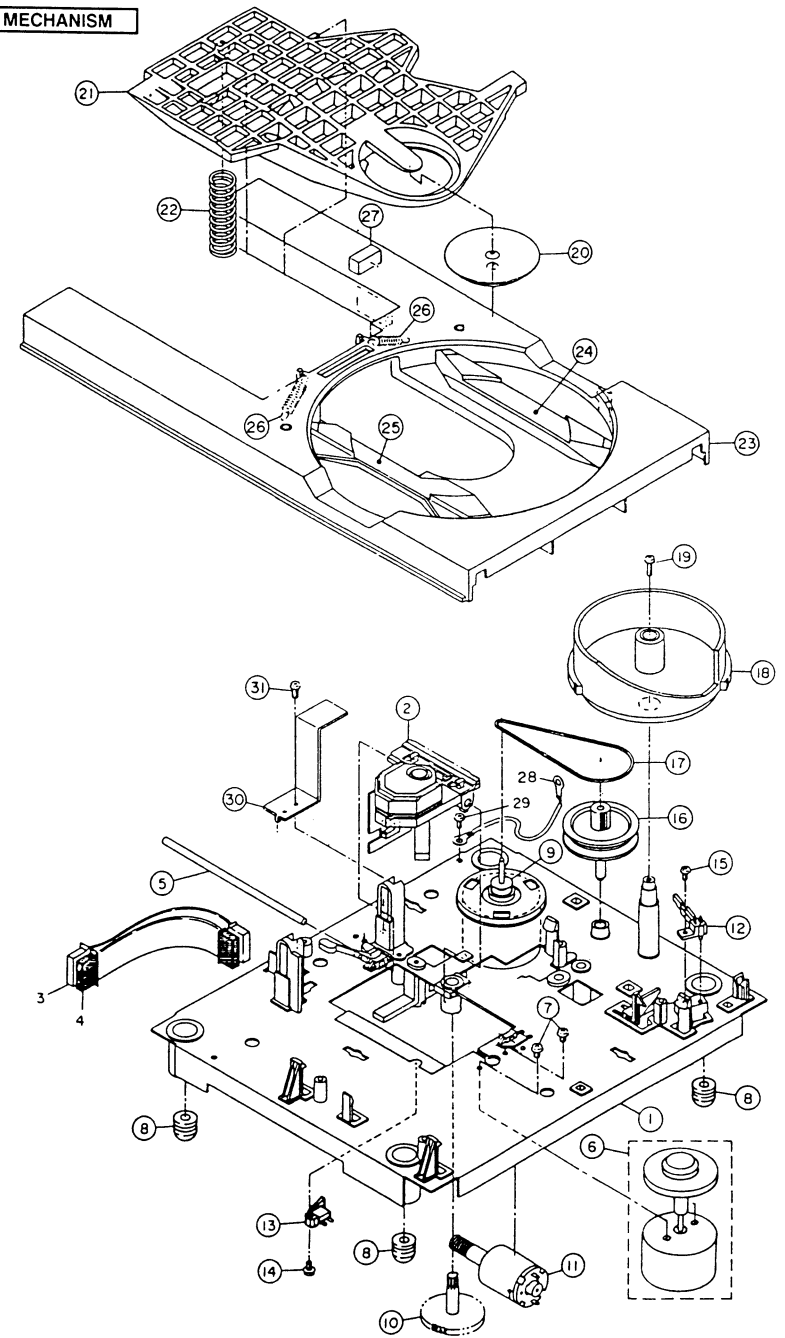
2. CD MECHANISM

Ref. No.	Part No.	Description
1	MA-380689M	CHASSIS MECHA OUTSERT PART
2	*BO-394728J	PICK UP KSS-210A
5	MS-368348	SHAFT
6	BM-392867M	SG MOTOR SPINDLE PART
7	ZS-367463	PAN20X025STL CMT
8	MB-368350	CUSHION RUBBER
9	BM-392868M	SG MOTOR LOADING PART (2)
10	MZ-368349M	GEAR WORM WHEEL
11	BM-392869M	SG MOTOR SLIDE PART
12	ES-368603	SW LEAF MSW-1585
13	ES-393376J	SW LEAF SPPB22 01-1
14	ZS-536488	BID20X08STL CMT
15	ZS-343082	PT BR26X08STL CMT
16	MR-394361M	PULLEY GEAR (B)
17	MB-368590J1	BELT LOADING
18	MZ-388217M	CAM GEAR LOADING
19	ZS-365391	PT BR30X08STL CMT C080
20	MZ-368347M	CLAMPER
21	SZ-374136M1	HOLDER CLAMPER
22	ZG-368591J1	SP PUSH CLAMP
23	SC-382692M3	DISK TRAY S PART
24	MZ-382686M1	HOLDER DISC S-(R)
25	MZ-382687M1	HOLDER DISC S-(L)
26	ZG-368592M1	SP PULL DISK HOLD
27	MB-377975	STOPPER RUBBER
30	MZ-378828J	ANGLE TRAY
31	ZS-432843	PAN26X04STL CMT

NOTE:

Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

CD MECHANISM



3. P.C BOARD BLOCK

Ref.No.	Part No.	Description
1	BA-P2063A020A	PC (#) MAIN BLK CD-37 (E)
2	BA-P2063A020B	PC (#) MAIN BLK CD-37 (V)
3	BA-P2063A020C	PC (#) MAIN BLK CD-27 (E)
4	BA-P2063A020D	PC (#) MAIN BLK CD-27 (V)

- PC (#) MAIN BLK CONSISTS OF FOLLOWING P.C BOARD.
- MAIN P.C BOARD
 - FRONT P.C BOARD
 - POWER P.C BOARD
 - HEAD PHONE P.C BOARD

4. MAIN P.C BOARD

Ref.No.	Part No.	Description
D1	*ED-511907	D SILICON 1N4002 100/1.0A
D2	*ED-511907	D SILICON 1N4002 100/1.0A
D3	*ED-511907	D SILICON 1N4002 100/1.0A
D4	*ED-511907	D SILICON 1N4002 100/1.0A
D5	*ED-511907	D SILICON 1N4002 100/1.0A
D6	*ED-511907	D SILICON 1N4002 100/1.0A
D7	*ED-511907	D SILICON 1N4002 100/1.0A
D8	*ED-511907	D SILICON 1N4002 100/1.0A
D9	*ED-511907	D SILICON 1N4002 100/1.0A
D10	ED-403605J	D ZENER H HZS33-2
D11	*ED-397400J	D ZENER H HZS7B2
D12	*ED-511907	D SILICON 1N4002 100/1.0A
D13	*ED-511907	D SILICON 1N4002 100/1.0A
D14	ED-396365J	D ZENER H HZS6C3
D15	ED-307572	D SILICON H 1SS131
D18	ED-307572	D SILICON H 1SS131
D19	ED-307572	D SILICON H 1SS131
D20	ED-307572	D SILICON H 1SS131
D27	ED-397233J	D ZENER H HZSSC3
D28	ED-400171J	D ZENER H HZS6C2L F05
D29	ED-403743J	D ZENER H HZS6B3
D32	ED-307572	D SILICON H 1SS131
D33	ED-307572	D SILICON H 1SS131
D34	ED-307572	D SILICON H 1SS131
D35	ED-307572	D SILICON H 1SS131
F1	*EF-344106	FUSE ICP-N10 50V 0.4A
F2	*EF-344106	FUSE ICP-N10 50V 0.4A
IB2	EH-389328J	COMP R RGLE9T 223J
IB3	EH-403602J	COMP R RGLE4T 223J
IB4	EH-403602J	COMP R RGLE4T 223J
IC1	*EI-377860	IC M5F780SL
IC2	*EI-400855J	IC NJM79M05FA
IC3	EI-390112J	IC CXA1081S
IC4	EI-390120J	IC CXA1082BS
IC5	EI-403497J	IC CXD1167Q
IC6	EI-403603J	IC M50957-270SP CD57SY1
IC7	EI-389254J	IC BA6209N
IC8	EI-403498J	IC CD0001AD
IC9	EI-403488J	IC PCM467P
IC11	EI-400756J	IC NJM4558L-B
IC12	EI-400756J	IC NJM4558L-B
J1	EJ-403489J	PIN J YKC21-3091 2P [ANALOG OUT]
J2	EJ-394490J	SOCKET OPTICAL GP1F32T [OPTICAL OUT]
L1	EO-351868	COIL FIX 1 LAP02 F05 470K
TR1	*ET-353899	TR 2SA1317 S,T,U
TR2	*ET-397160J	TR 2SC3330 R,S,T,U,V
TR3	ET-363953	TR DTA114TS
TR4	ET-360399	TR DTC114TS
TR6	ET-353899	TR 2SA1317 S,T,U
TR7	ET-397160J	TR 2SC3330 R,S,T,U,V
TR8	ET-394916J	TR 2SD2037 E,F T05
TR9	ET-394495J	TR 2SA934 Q,R
TR10	ET-394916J	TR 2SD2037 E,F T05
TR11	ET-394919J	TR 2SB1329 Q,R T05
TR12	ET-394494J	TR 2SC2060 Q,R F05
TR13	ET-394495J	TR 2SA934 Q,R
TR14	ET-394917J	TR 2SD2005 Q,R T05
TR15	ET-394919J	TR 2SB1329 Q,R T05
TR17	ET-375983	TR DTA124TS
TR18	ET-397160J	TR 2SC3330 R,S,T,U,V
TR19	ET-397160J	TR 2SC3330 R,S,T,U,V
TR23	ET-352726	TR 2SA1392 T,U
TR24	ET-378524J	TR 2SC3383 S,T,U
VR1	EV-389489J	R S-FIX H T05EVNDXAA03 0.1W472
VR2	EV-389479J	R S-FIX H T05EVNDXAA03 0.1W223
VR3	EV-389479J	R S-FIX H T05EVNDXAA03 0.1W223
VR4	EV-389479J	R S-FIX H T05EVNDXAA03 0.1W223
VR5	EV-405242J	R S-FIX H T05 EVMF6S 0.30W 102
X1	EI-381139J	OSC XTAL HC-49/U 16934.400KHZ

5. FRONT P.C BOARD

Ref.No.	Part No.	Description
D201	ED-307572	D SILICON H 1SS131
D202	ED-307572	D SILICON H 1SS131
D206	ED-307572	D SILICON H 1SS131
IN201	*EM-389466J	IND FL FIP8CYM7 CHARACTER
RM201	ET-403432J	DETECTOR SPS-420-1
SW206	ES-394818J	SW TACT SOR-123HS T05 [PLAY]
SW211	ES-394818J	SW TACT SOR-123HS T05 [STOP]
SW213	ES-394818J	SW TACT SOR-123HS T05 [OPEN/CLOSE]
SW217	ES-394818J	SW TACT SOR-123HS T05 [FF SEARCH]
SW218	ES-394818J	SW TACT SOR-123HS T05 [DISPLAY]
SW222	ES-394818J	SW TACT SOR-123HS T05 [REV SEARCH]

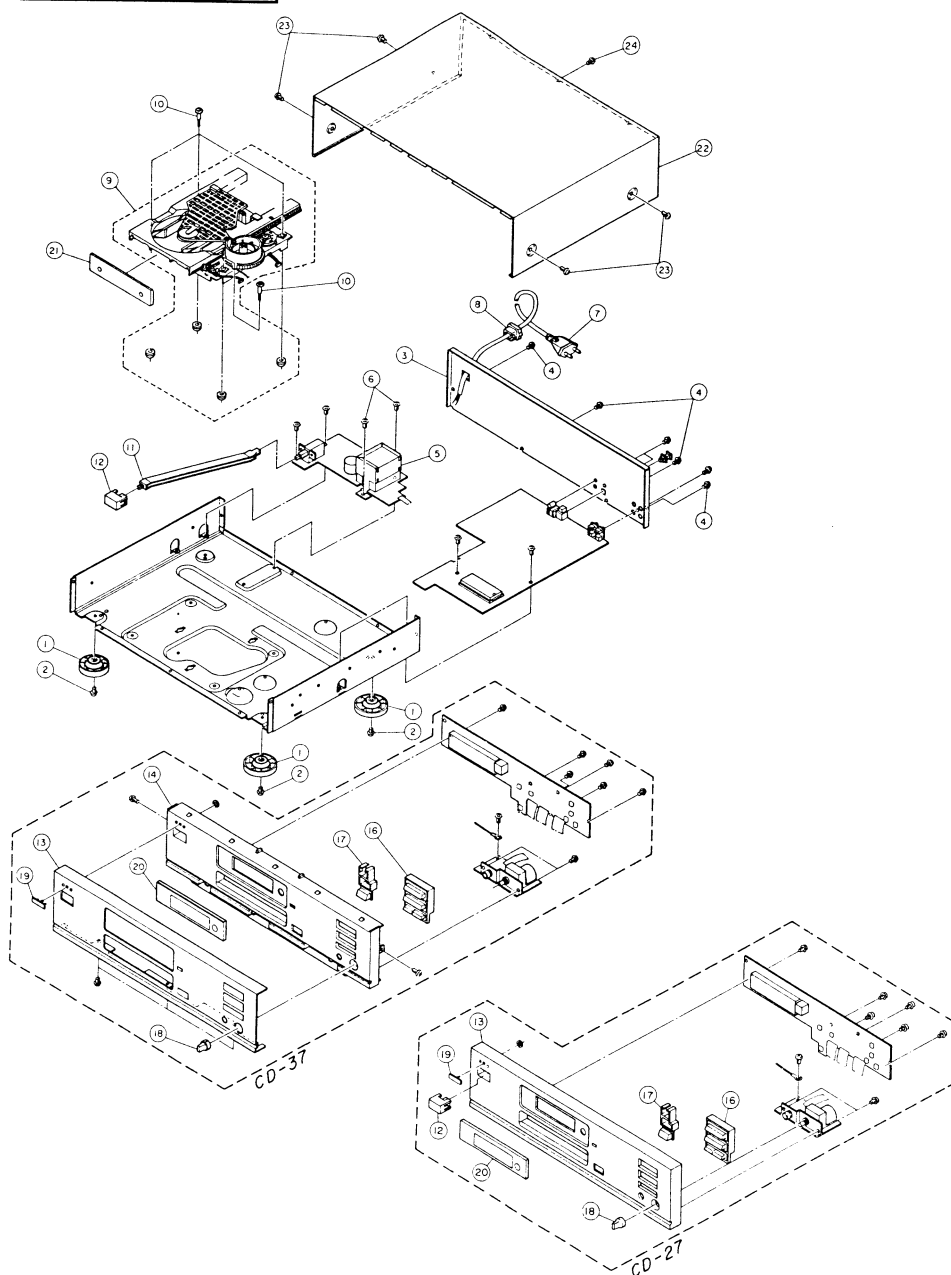
6. POWER P.C BOARD

Ref.No.	Part No.	Description
FL301	*EO-338409	COIL LF FKOB160MH02 250UH
SW301	*ES-371104	SW PUSH SDDLDT1 01-1 [POWER SW]

7. HEAD PHONE P.C BOARD

Ref.No.	Part No.	Description
IC402	EI-393323J	IC M5218AL-771
J401A	EJ-403607J	PHONE J 3P HLJ4318-3020 6.3 [CD-27]
J401B	EJ-403490J	PHONE J *P HLJ4317-3120GP 6.3 [CD-37]
VR401A	EV-403491J	VR ROTARY RK16K12B A203X2 [CD-27]
VR401B	EV-405497J	VR ROTARY RK16K12B METALA203X2 [CD-37]

FINAL ASSEMBLY BLOCK



8. FINAL ASSEMBLY BLOCK (CD-27)

Ref.No.	Part No.	Description
1	SA-379375	FOOT (N)
2	ZS-522865	T2BR30X12STL BNI
3A	SP-402861M	PANEL REAR CD-27 (E)
3B	SP-402864M	PANEL REAR CD-27 (B)
3C	SP-406391M	PANEL REAR CD-27 (V)
4	ZS-331182	BT BID30X08STL BNI
5A	*BT-403493M	TRANS POW P2062-EV [E.V]
5B	*BT-403494M	TRANS POW P2062-BS [B]
6	ZS-300519	ST PAN40X08STL CMT
7A	*EW-347897	AC CORD 2 CORES VM0364,LCFL EV [E.V]
7B	*EW-346249	AC CORD 2 CORES LCFL2X0.75 B [B]
8	*EZ-371605	BUSH CORD 2271
9	BB-P2036T060C	SG MECHA BLK CD-M600
10	ZS-378163	SCREW GRADUATED
11	SZ-402854M	JOINT POWER
12	SK-404769J	BUTTON POWER-B
13	SP-404776M	PANEL FRONT CD-27-B
16	SK-404775M	BUTTON PLAY-B
17	SK-404772M	BUTTON OPEN-B
18	SK-404770M	KNOB VOL-B
19	SM-365756C	NAME PLATE AKAI (2)
20	SE-404771M	WINDOW FLD-B
21	SP-404773M	PANEL TRAY-B
22	SP-402865M	COVER UPPER-B
23	ZS-322580	ST BID40X08STL BNI
24	ZS-308846	T2BR30X08STL BZN PROJECTION

NOTE:

Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

9. FINAL ASSEMBLY BLOCK (CD-37)

Ref.No.	Part No.	Description
1	SA-379375	FOOT (N)
2	ZS-522865	T2BR30X12STL BNI
3A	SP-404645M	PANEL REAR CD-37 (E)
3B	SP-402859M	PANEL REAR CD-37 (V)
4	ZS-331182	BT BID30X08STL BNI
5	*BT-403493M	TRANS POW P2062-EV [E.V]
6	ZS-300519	ST PAN40X08STL CMT
7	*EW-347897	AC CORD 2 CORES VM0364,LCFL EV [E.V]
8	*EZ-371605	BUSH CORD 2271
9	BB-P2036T060C	SG MECHA BLK CD-M600
10	ZS-378163	SCREW GRADUATED
11	SZ-402854M	JOINT POWER
12	SK-373236B	KNOB POWER-B
12-G	SK-373236A	KNOB POWER-G
13	SP-402869J	PANEL FRONT CD-37-B
13-G	SP-402870J	PANEL FRONT CD-37-G
14	SP-402825M	ESCUTCHEON FRONT-B
14-G	SP-402826M	ESCUTCHEON FRONT-G
16	SK-402852M	BUTTON PLAY-B
16-G	SK-402853M	BUTTON PLAY-G
17	SK-402842M	BUTTON OPEN-B
17-G	SK-402843M	BUTTON OPEN-G
18	SK-404643J	KNOB SELECT-B (2)
18-G	SK-404644J	KNOB SELECT-G
19	SM-365756C	NAME PLATE AKAI (2)
19-G	SM-365756A	NAME PLATE AKAI-G
20	SE-402845J	WINDOW FLD
21	SP-402849M	PANEL TRAY-B
21-G	SP-402850M	PANEL TRAY-G
22	SP-402865M	COVER UPPER-B
22-G	SP-402866M	COVER UPPER-G
23	ZS-322580	ST BID40X08STL BNI
23-G	ZS-322570	ST BID40X08STL N3
24	ZS-308846	T2BR30X08STL BZN PROJECTION

NOTE:

Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

10. ACCESSORY

Ref.No.	Part No.	Description
1	EW-389765J	CORD 6276 P-P 2P
2	AX-405220M	REMCON RC-C37

MEMO

ABBREVIATIONS (COMPACT DISC)

ABBREVIATION	EXPLANATION	ABBREVIATION	EXPLANATION
A-D	Analog to Digital (Convertor)	Mb	Mega Bits
ADC	Analog to Digital (Convertor)	MDA	Motor Drive Amplifier
BCD	Binary Code Decimal	MFM	Modified Frequency Modulation
BPI	Bits per Inch	MM	Mono-stable Multivibrator
CD	Compact Disc	M ² FM	Modified Modified Frequency Modulation
CIRC	Cross Interleaving & Reed Solomon Coding	MOD2	Modulo 2 (Addition)
CLV	Constant Linear Velocity	MP	Microprocessor
CP	Clock Pulses	MSB	Most Significant Bit
CRCC	Cyclic Redundancy Check Codes	NA	Numerical Aperture
D Level	Decision Level	NRZ	Non Return to Zero
D-A	Digital to Analog (Convertor)	NRZ-1	Non Return to Zero Inverted
DAC	Digital to Analog (Convertor)	P	Parity Data
DAD	Digital Audio Disc	PAM	Pulse Amplitude Modulation
DEM	Dynamic Element Matching	PCM	Pulse Code Modulation
DPD	Differential Phase Detection	PD	Phase Detector
DSV	Digital Sum Value	PE	Phase Encode
EFM	Eight to fourteen Modulation	PLL	Phase Locked Loop
EX-OR	EXclusive OR	PNM	Pulse Number Modulation
FCI	Flux Changes per Inch	PPM	Pulse Phase Modulation
FIR	Finite Impulse Response	PWM	Pulse Width Modulation
FP	Front Pulse	Q	Parity Data
FPG	Front Pulse Gate	R, R ₁ , R ₂ , etc.	Data for Right Channel
f	Frequency of Sampling	RAM	Random Access Memory
GF	Galois Field	RPG	Rear Pulse Gate
H & V (Parity)	Horizontal & Vertical	SCOOP	Self Coupled Optical Pick-up
IIR	Infinite Impulse Response	S & H	Sample & Hold
kb	Kilo Bits	S/N	Signal to Noise Ratio
L, L ₁ , L ₂ , etc.	Data for Left Channel	SSG	Standard Signal Generator
LPF	Low Pass Filter	SYSCON	SYStem CONtrol
LSB	Least Significant Bit		

AKAI

MODEL **CD-27**

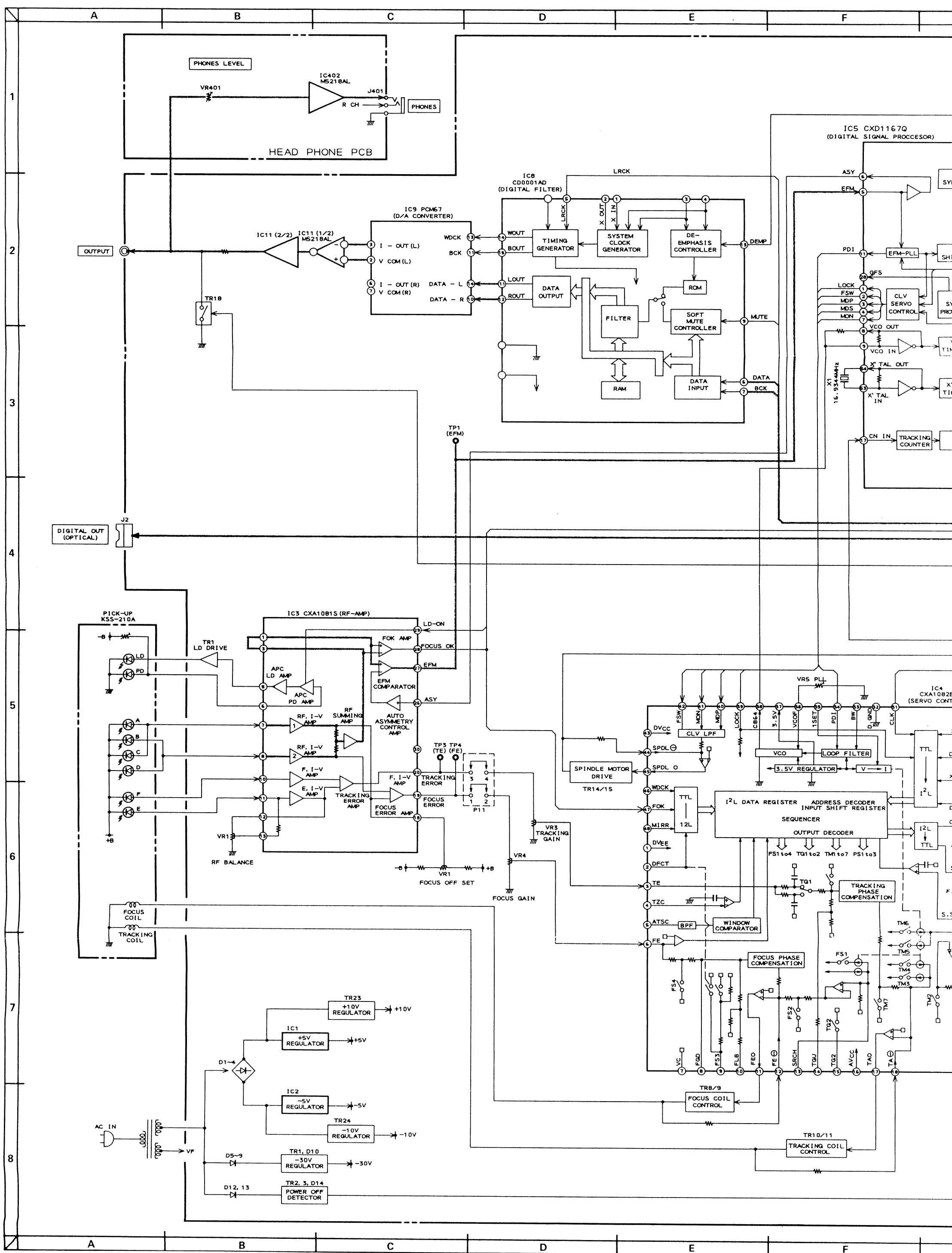
MODEL **CD-37**

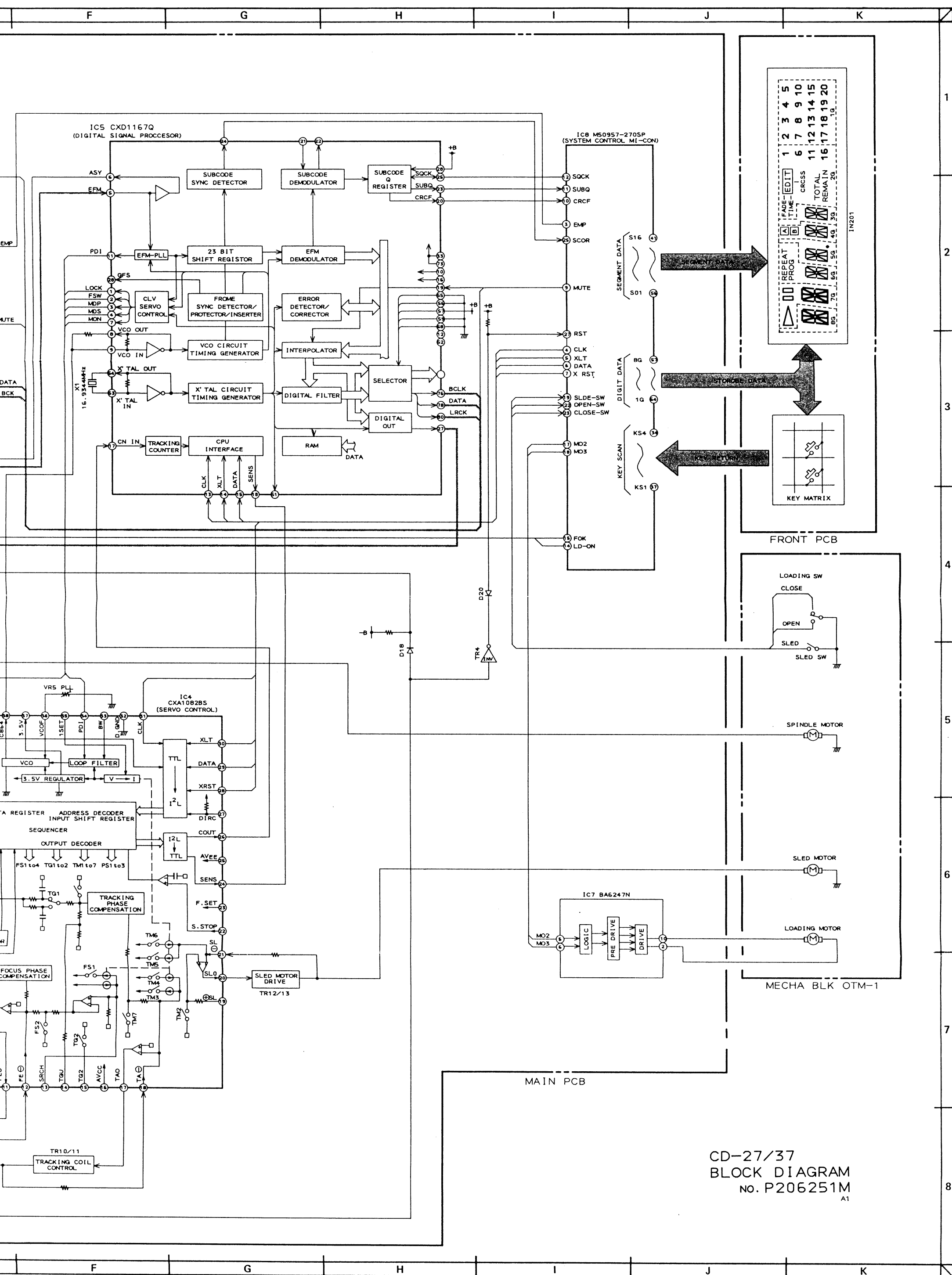
SCHEMATIC DIAGRAMS AND PC BOARDS

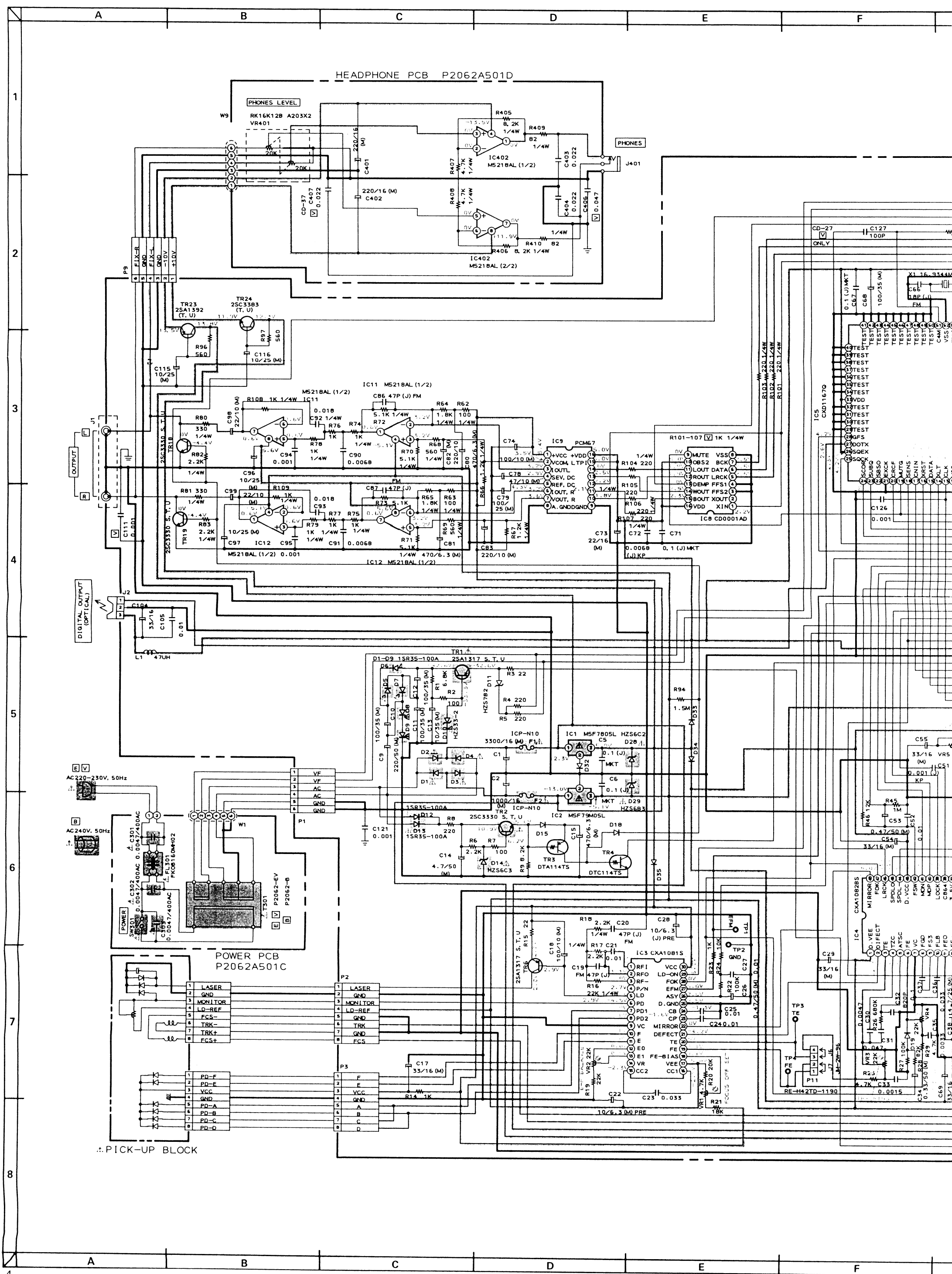
TABLE OF CONTENTS

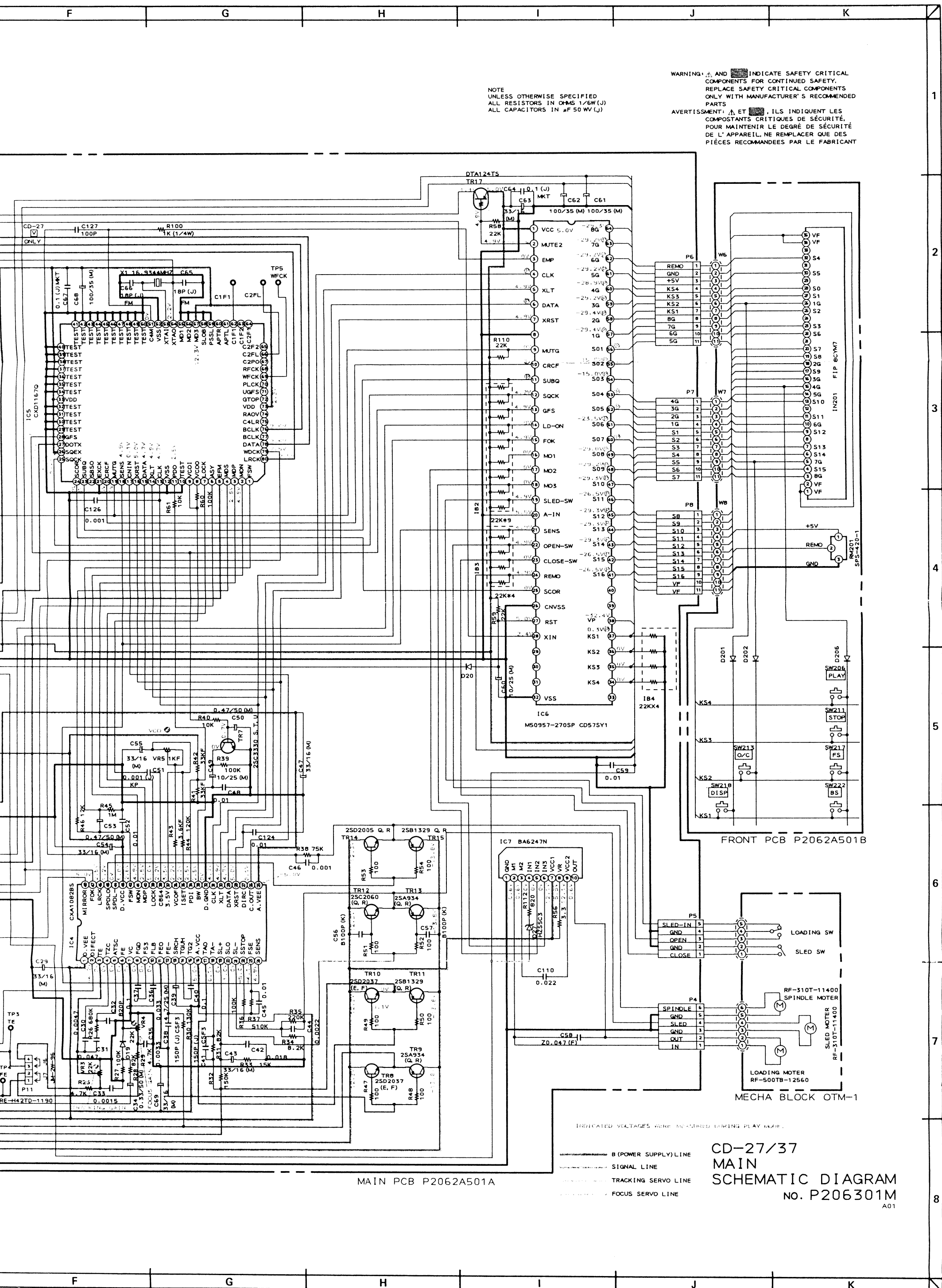
1. BLOCK DIAGRAM	3
2. SCHEMATIC DIAGRAM	4
3. MAIN PC BOARD	5
4. POWER AND OTHER PC BOARDS	6
5. INFORMATION OF ICs	7

Use the following schematic diagrams and PC boards together with the provided service manual.









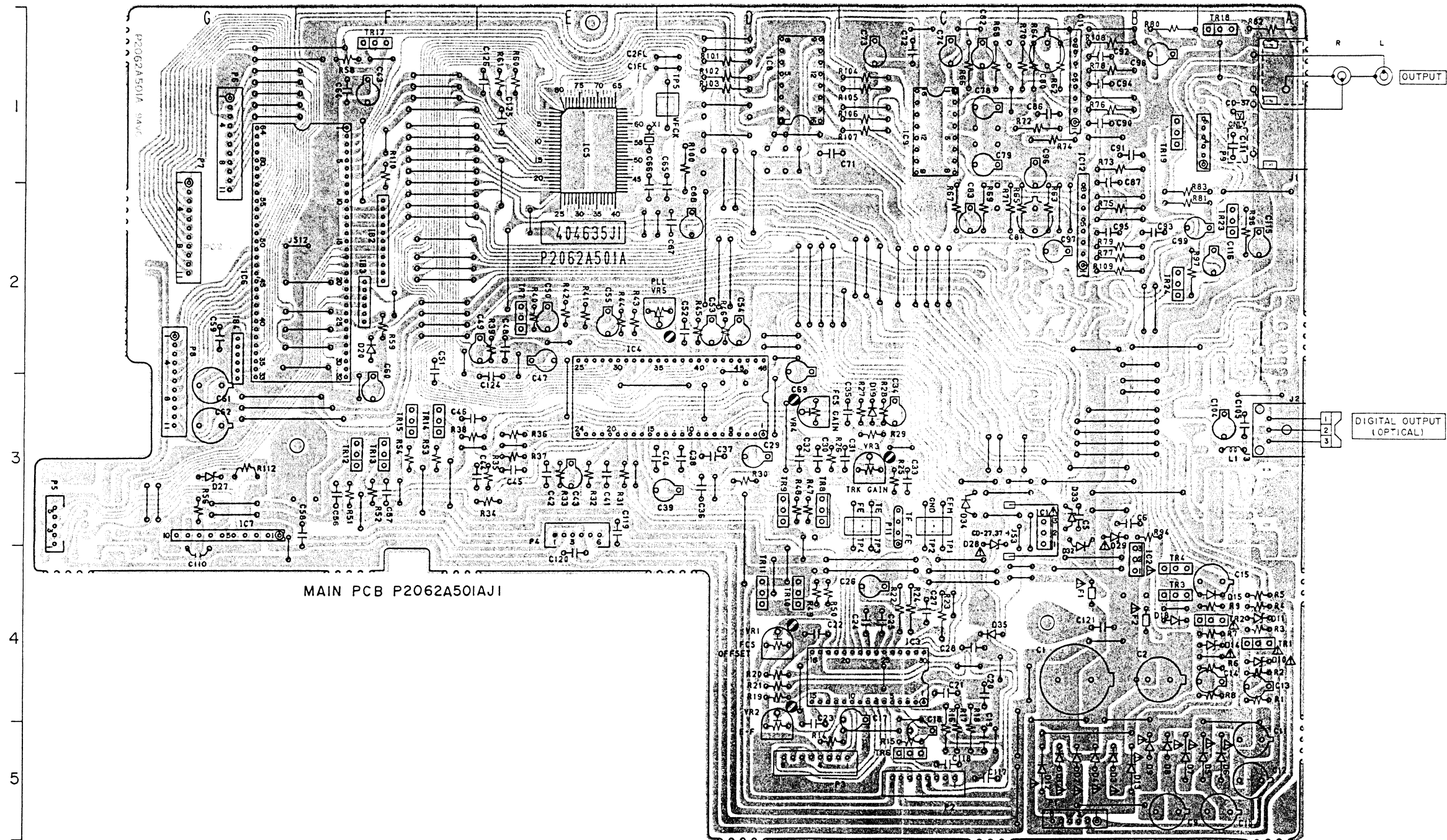
NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/6W (J)
ALL CAPACITORS IN μ F 50 WV (J)

WARNING: AND INDICATE SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.
AVERTISSEMENT: ET ILS INDIQUENT LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT

INDICATED VOLTAGES WERE MEASURED DURING PLAY MODE.

..... B (POWER SUPPLY) LINE
..... SIGNAL LINE
..... TRACKING SERVO LINE
..... FOCUS SERVO LINE

CD-27/37
MAIN
SCHEMATIC DIAGRAM
NO. P206301M
A01



PRINCIPAL PARTS LOCATION

ICS	
IC1	B3
IC2	B4
IC3	C4
IC4	D,E3
IC5	E1
IC6	F,G2
IC7	G3
IC8	D1
IC9	C1
IC11	B1
IC12	B2

CONNECTORS

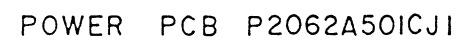
P1	C5
P2	C5
P3	C,D5
P4	E3
P5	G3
P6	G1
P7	G2
P8	G2,3
P9	A1

TRANSISTORS

TR1	A4
TR2	A4
TR3	B4
TR4	B4
TR6	C5
TR7	E2
TR8	D3
TR9	D3
TR10	D4
TR11	D4
TR12	F3
TR13	F3
TR14	F3
TR15	F3
TR16	G3
TR17	F1
TR18	A1
TR19	B1
TR22	A2
TR23	A2
TR24	B2

WARNING: INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

AVERTISSEMENT: IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.



FRONT PCB P2062A50IBJI

CXD1167Q (DIGITAL SIGNAL PROCESSOR)

Pin No.	Symbol	I/O	Description
1	FSW	O	Spindle motor filter switching control
2	MON	O	Spindle motor ON / OFF control
3	MPD	O	Spindle motor speed and phase control
4	MDS	O	Spindle motor speed control
5	EFM	I	EFM signal input
6	ASY	O	EFM signal slice level control
7	LOCK	O	Slide motor over reach guard signal output
8	VCOO	O	VCO output (f = 8.6436 MHz)
9	VCOI	I	VCO input
10	TEST	I	0 V (GND)
11	PDO	O	Phase comp.output
12	VSS	—	GND (0V)
13	CLK	I	Clock signal input from CPU
14	XLT	I	Latch signal input from CPU
15	DATA	I	Serial data input from CPU
16	XRST	I	System reset input L : RESET
17	CNIN	I	Tracking pulse input
18	SENS	O	Output of CPU interface
19	MUTG	I	Mute control signal input
20	CRCF	O	CRC check data output of the subcode Q
21	EXCK	I	Not use (GND)
22	SBSO	O	Not use
23	SUBQ	O	Subcode Q output
24	SCOR	O	Subcode sync detection output
25	SQCK	I/O	Clock signal for subcode Q
26	SQEX	I	Select input of SQCK (+ 5V)
27	DOTX	O	Digital output
28	GFS	O	H : Frame sync lock L : Frame sync unlock
29	TEST	I	0V (GND)
30	TEST	I	0V (GND)
31	TEST	I	0V (GND)
32	TEST	I	0V (GND)
33	Vdd	—	+ 5V
34	TEST	I	0V (GND)
35	TEST	I	0V (GND)
36	TEST	I	0V (GND)
37	TEST	I	0V (GND)
38	TEST	I	0V (GND)
39	TEST	I	0V (GND)
40	TEST	I	0V (GND)
41	TEST	I	0V (GND)
42	TEST	I	0V (GND)
43	TEST	I	0V (GND)
44	TEST	I	0V (GND)
45	TEST	I	0V (GND)
46	TEST	I	0V (GND)
47	TEST	I	0V (GND)
48	TEST	I	0V (GND)
49	TEST	I	0V (GND)
50	TEST	I	0V (GND)
51	C4M	O	1 / 4 X'tal OSC output (f = 4.2336 MHz)
52	Vss	—	GND
53	XTAI	I	X'tal OSC input (f =16.9344 MHz)
54	XTAO	O	X'tal OSC output (f =16.9344 MHz)
55	MD1	I	Mode select input 1 0V (GND)
56	MD2	I	Mode select input 2 0V (GND)
57	MD3	I	Mode select input 3 + 5V
58	SLOB	I	Code select input for audio data 0V (GND)
59	PSSL	I	Mode select input for audio data 0V (GND)
60	APTR	O	Not use
61	APTL	O	Not use
62	C1F1	O	Not use
63	C1F2	O	Not use
64	C2F1	O	Not use
65	C2F2	O	Not use
66	C2FL	O	TP-C2FL
67	C2PO	O	Not use
68	RFCK	O	Not use
69	WFCK	O	TP-WFCK
70	PLCK	O	Not use
71	UGFS	O	Not use
72	GTOP	O	Not use
73	Vdd	—	+ 5V
74	RAOV	O	Not use

Pin No.	Symbol	I/O	Description
75	C4LR	O	Not use
76	BCLK	O	Bit clock for input data
77	BCLK	O	Not use
78	DATA	O	Serial data output
79	WDCK	O	Word clock output
80	LRCK	O	L / R clock output

D-0001AD (DIGITAL FILTER)

Pin No.	Symbol	I/O	Description															
1	XIN	I	Crystal OSC input or external input															
2	XOUT	O	Crystal OSC output															
3	FSS2	I	Selected sampling frequency <table><tr><th>FSS2</th><th>FSS1</th><th>fs</th></tr><tr><td>L</td><td>L</td><td>44.1 kHz</td></tr><tr><td>H</td><td>L</td><td>48 kHz</td></tr><tr><td>H</td><td>H</td><td>32 kHz</td></tr><tr><td>L</td><td>H</td><td>STOP</td></tr></table>	FSS2	FSS1	fs	L	L	44.1 kHz	H	L	48 kHz	H	H	32 kHz	L	H	STOP
FSS2	FSS1	fs																
L	L	44.1 kHz																
H	L	48 kHz																
H	H	32 kHz																
L	H	STOP																
4	FSS1	I																
5	LRCK	I	L / R clock input															
6	DATA	I	Serial data input															
7	BCLK	I	Bit clock for input data															
8	VSS		GND															
9	SMUTE	I	Soft mute control H = ON, L = OFF															
10	OBS	I	R ch sample and hold plus output															
11	LDOUT	O	L ch Serial data output															
12	RDOUT	O	R ch Serial data output															
13	DEMPH	I	De-emphasis control															
14	WOUT	O	Word clock output															
15	BOUT	O	Bit clock output for LDOUT and RDOUT															
16	VDD		+ 5V															

PCM 67P (D/A CONVERTER)

Pin No.	Symbol	Description
1	+Vcc	+ B for analog (+ 5V)
2	VCOM (L)	L ch V common
3	I-OUT (L)	L ch Current output
4	SERVO DC	Servo filter
5	REF DC	Refrence filter
6	I-OUT (R)	R ch Current output
7	VCOM (R)	R ch V common
8	A.GND	Analog GND
9	D.GND	Digital GND
10	DATA (R)	R ch Data input
11	BCK	Bit clock input
12	SYS-CLK	System clock input
13	WDCK	Word clock input
14	DATA (L)	L ch Data input
15	TP1	Test terminal 1
16	VDD	+ B for digital (+ 5V)